CLAIMS

1. A bipolar transistor of NPN type implemented in an epitaxial layer within a window defined in a thick oxide layer, including:

an opening formed substantially at the center of the window, the opening penetrating into the epitaxial layer down to a depth of at least the order of magnitude of the thick oxide layer, the walls of the opening being coated with a layer of silicon oxide and with a layer of silicon nitride,

a polysilicon spacer formed on the lateral walls and a portion of the bottom wall of the opening,

an N-type highly-doped polysilicon layer formed in the opening and in contact with the epitaxial layer at the bottom of the opening within the space defined by the spacer,

an N-type doped region at the bottom of the opening,

a first P-type doped base region at the bottom of the opening,

a second lightly-doped P-type region on the sides of the opening, and

a third highly-doped P-type region formed in the vicinity of the upper part of the opening, this third region being in contact with an N-type doped polysilicon layer, the three P-type regions being contiguous and forming the base of the transistor.

2. An NPN transistor according to claim 1, further including a fourth P-type doped intermediary region between the third and second regions.

3. An NPN transistor according to claim 1, having a collector is formed vertically of a portion of the epitaxial layer, of an overdoped region resulting from an implant in the opening and of a buried layer.

4. A method for fabricating an NPN transistor in an epitaxial layer of type N, including the steps of:

defining a window in a thick oxide region,

depositing a polysilicon layer and a silicon oxide layer,

substantially opening at the center of the window the silicon oxide and polysilicon layers,

performing a thermal oxidation,

forming in the opening an insulating layer of a first material which is selectively etchable with respect to the silicon oxide,

forming spacers in a second material which are selectively etchable with respect to the silicon oxide and to the first material,

opening the bottom of the opening within the area defined by the spacers,

depositing an N-type doped polysilicon layer,

including, after the step of opening of the polysilicon and silicon oxide layers, the step of further opening to a determined depth the epitaxial layer and of implanting a P-type doping in the epitaxial layer at the bottom of the opening and on the walls thereof.

5. A method according to claim 4, wherein the implant step is a step of oblique implant under low incidence.

6. A method according to claim 5, further including a second step of oblique implant under strong incidence and at high dose of a P-type doping.

7. A method according to any of claims 4 to 6, including, after the step of forming an opening in the epitaxial layer, the step of implanting an N-type doping to form in the epitaxial layer an N-type collector region at a higher doping level close to a buried layer of type N+ formed under this epitaxial layer.

8. A method according to claim 4, wherein the first material is silicon nitride.

9. A method according to claim 4, wherein the second material is polysilicon.